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PIC/R-1001/61  
January 1961

PHOTOGRAPHIC INTELLIGENCE REPORT  
DECLASS REVIEW BY NIMA / DoD

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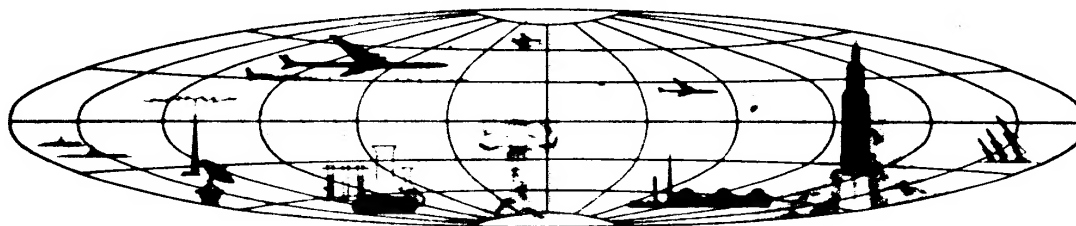
**REDKIYE ELEMENTI PLANT  
NEAR  
MOSCOW, USSR**



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### PREFACE

This photographic intelligence report has been prepared in response to a request for a detailed drawing of the Redkiye Elementi Plant area and an estimate of the electric power available to the site. It was further requested that a search be made to confirm the existence of a large factory building described in a referenced report.

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Aerial photography of [redacted] and [redacted] ground photography were examined in an effort to answer the requirement. No photographs are reproduced in the report because of the poor quality of the photography viewed.

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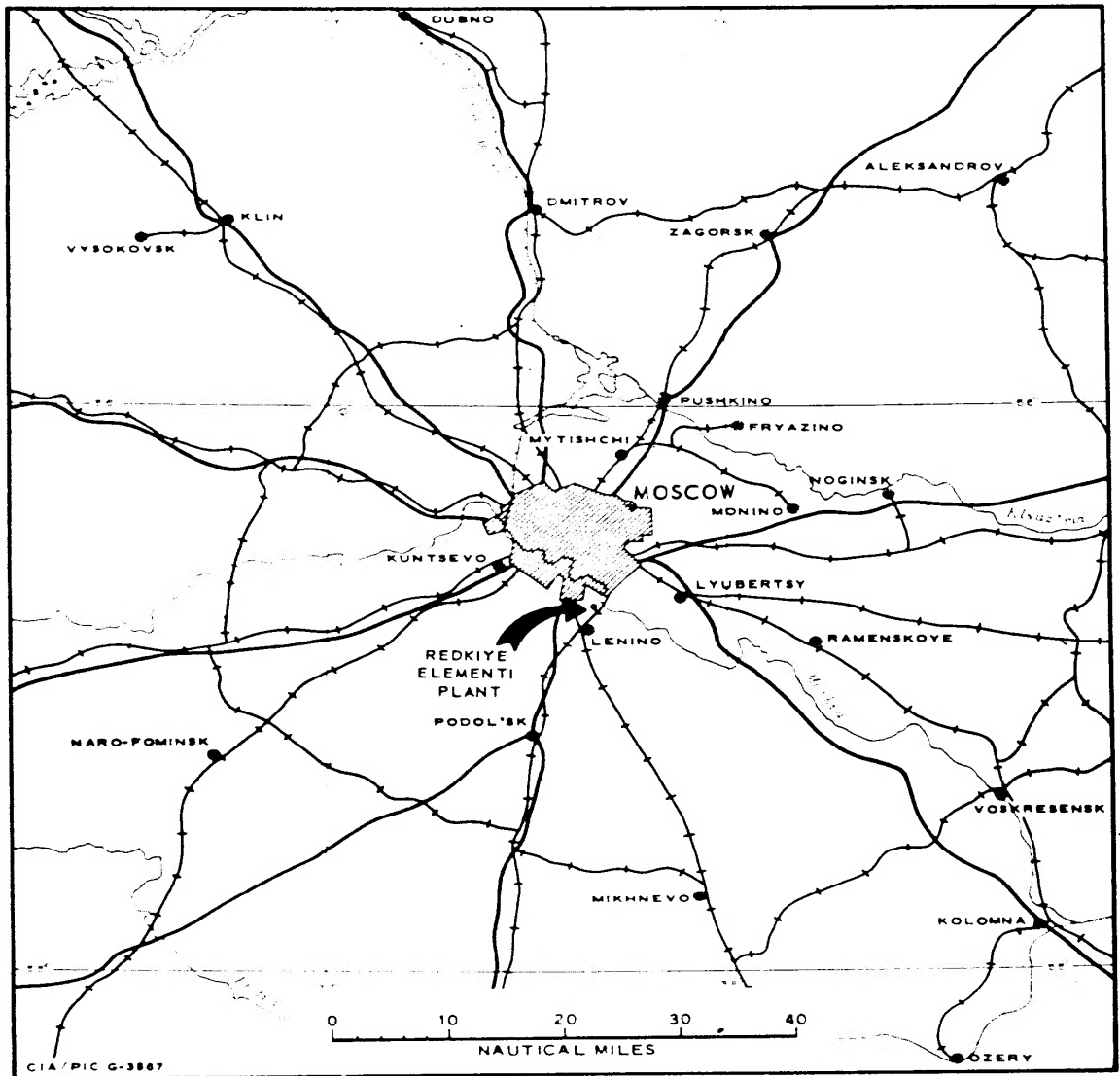


FIGURE 1. GENERAL LOCATION MAP.

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## INTRODUCTION

The Redkiye Elementi Plant (55-38-30N 37-41-10E) is located 5 nautical miles (nm) south of Moscow on the Kashira Highway at Belyayevo. The plant proper covers an area approximately 5,000 by 1,300 feet on the northeast side of the highway, with a housing and support area on the southwest side. A rail line between Lenino and Lyublino passes through a valley just east of the plant, but the plant appears to be served only by road and possibly river traffic.

Also known as "Redelem" or Rare Elements Plant A, 1/ the Redkiye Elementi Plant  is a pre-war chemical-metallurgical factory extracting a number of rare metals from ore concentrates and also producing certain alloy materials. In the past its production reportedly included such items as pure cobalt, radium, barium, and hand tool alloys. 2/, 3/, 4/, 5/

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A recent report indicates that zirconium metal production was started here in the late 1940's. The annual capacity was estimated at 20 tons of zirconium metal ingots and was reported to be exclusively for nuclear reactor purposes. 1/ The same report states that the zirconium powder was obtained by fusion electrolysis of a mixture consisting of potassium-zirconium-fluoride ( $K_2ZrF_6$ ) and sodium chloride.

Electric power is available through the large (220-kv) Kolomenskoye substation approximately 1.7 nm northwest of the plant at 55-39-30N 37-38-20E. There is also a thermal power plant at that location. The electric power grid in the Moscow area should be able to satisfy any requirements of the Redkiye Elementi Plant.

An ore-processing plant located directly across the Moscow River, may be associated with the plant and is discussed below.

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#### DESCRIPTION

25X1D This plant has been covered by aerial photography of [ ] and  
25X1D [ ] and ground photographs of [ ] In addition there  
have been several collateral reports 1/, 6/, 7/ with accompanying sketches  
of the plant facilities. A correlation of the photography with collateral  
materials indicates that the plant could consist of as many as five areas  
some of which, at least, are separately fenced. It also appears likely that  
the reported zirconium production 1/ occupies only a small part of the  
plant.

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25X1D The drawing of the plant area is based on the [ ] photography with  
newer buildings added (in green) on the basis of the poor-quality [ ]  
photographs. Because of cloud cover, it is impossible to determine the  
number of buildings which have been torn down, modified, or added as of  
25X1D [ ] But the drawing does give an approximation of the expansion  
that has taken place during the 15 years between the two photographs.

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The plant has been divided into five areas (A through E) and a housing  
area (Area F) as annotated in Figure 2 and in a sketch in one of the colla-  
teral reports. 6/ Following is a summary of information derived from  
the photography and collateral reports with respect to each area.

#### AREA A

25X1D This appears to be the newest section of Redkiye Elementi, visible  
only on [ ] aerial photographs. It is a walled area with a 980-foot front-  
age extending back 1,230 feet to within 450 feet of the Moscow River. It has  
two entrances with guard shacks next to one or possibly both entrances.  
There is a 450 by 285-foot multistory building with an open courtyard  
(330 by 165 feet) in its center. Possibly six other buildings are located  
in this area but cannot be described from the poor-quality photography.  
None of the ground photos are of buildings in this area.

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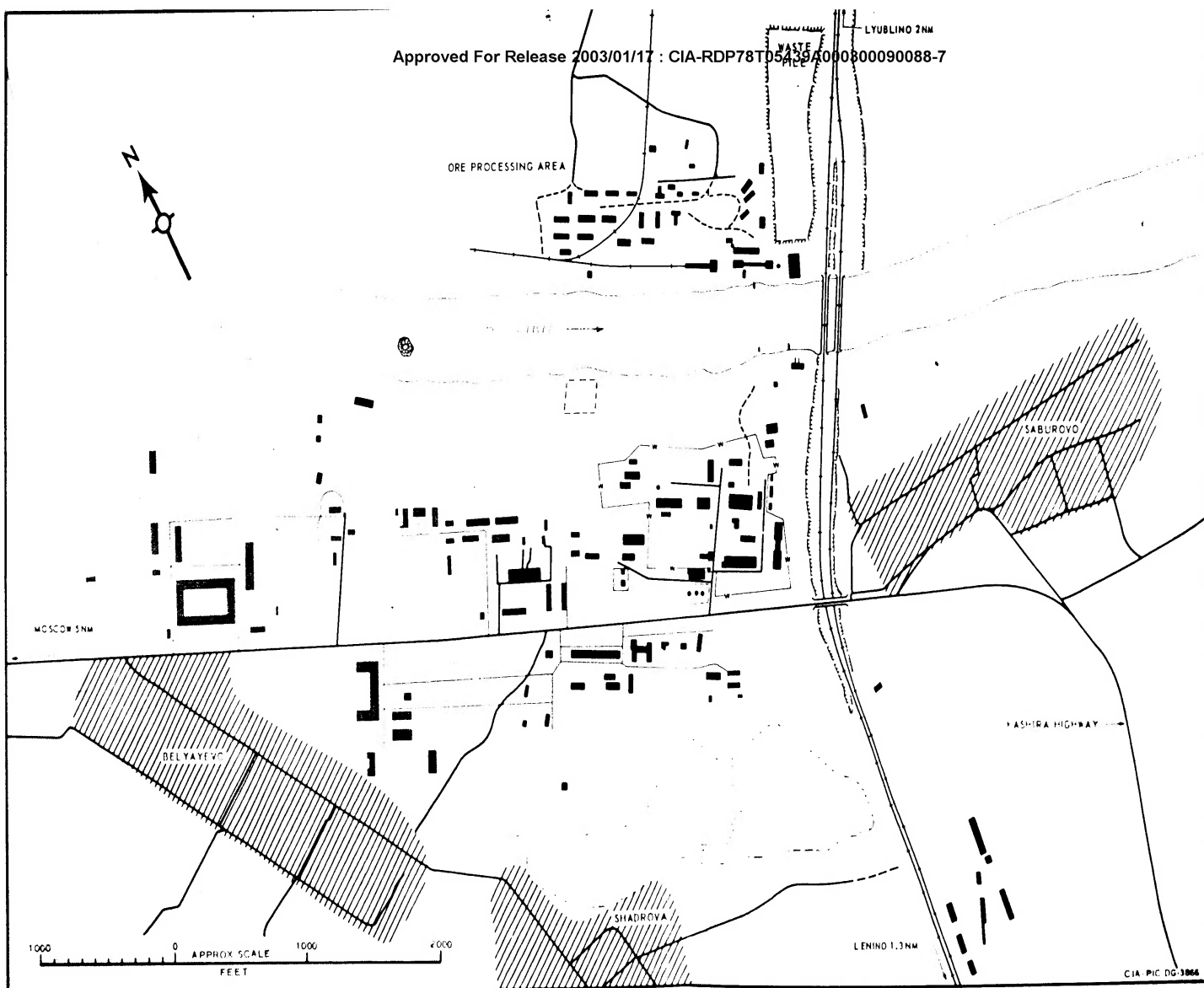


FIGURE 2. REDKIYE ELEMENTI PLANT. This drawing is based on ☐ photography with newer buildings added (in green) on the basis of poor-quality ☐ photographs.

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Area A seems to fit the description of a "new factory" site reported

the factory itself is perhaps 800 by 350 feet (actually 450 by 285 feet) four stories high, has large openings in the center of each end and has many low chimneys or ventilation ducts toward the rear of the building. Behind this building is reported a small building with a large chimney. Although Area A is believed to be this same area described as a new factory, it seems more likely that the large building is an administrative headquarters and laboratory as suggested by a 1958 report. 2/

#### AREAS B, C, D

These areas are to a great degree cloud covered on the [ ] coverage. They are separately fenced but distinct area bounds cannot be ascertained. It is clear from figure 2 that there have been many changes in these areas since [ ] Old buildings have been removed in many instances and new ones constructed. One of the [ ] photos, [ ] is probably of Area B or Area C and shows a few production facilities visible beyond the high wall. A two-story administrative building with a statue in front of it can be seen on photos [ ] These photos reveal construction in progress to the rear of the building and appear to have been taken in Area D.

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Although the coverage of these areas is poor, and accurate measurements are impossible, it is clear that the production facilities are moderate in size and that some of the buildings are administrative in nature.

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AREA E

25X1D Cloud cover in this area is particularly heavy on the [ ] photography. It appears to be the oldest area of the plant. Most of the buildings seen on the [ ] photography are visible on the [ ] photography even though modifications undoubtedly have been made through the years. Unlike the other areas discussed there is fairly good coverage of Area E on [ ] ground photos. [ ] reveal many chemical-processing-type buildings with one large brick stack and numerous small metal stacks. The perimeter wall is a solid wood fence topped with barbed wire.

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Area E is most likely the chemical works. 6/ It includes a transformer building, electrolysis, and fractional crystallization buildings for zirconium production. 1/ The various process buildings, however, cannot be identified on the available photography.

AREA F

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This area has the characteristics of a housing and support area for the plant. It lies between the village of Belyayevo and the plant. Despite the heavy cloud cover on [ ] photography, it is evident that Area F has been greatly expanded with the rest of the plant since [ ] Additions include a large U-shaped building, a smaller U-shaped building, a rectangular multistory building, two large parallel buildings, possibly barracks or warehouses, and several blocks of smaller dwellings. It has been reported that Area F is an accommodation area with 18 large blocks of tenements and a hospital (50-100 beds). 6/ Another report puts a single-story casino or clubhouse in this area. 1/

Ore-Processing Area. In addition to the areas of the Redkiye Elementi Plant described above, there is an ore-processing area on the opposite side of the Moscow River as indicated in the figure. It could very well be

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associated with the rare elements plant since docking facilities were visible on both sides of the river in [ ] It is not clear, however, just how materials would be carried up the hilly slopes from the river to the plant.

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The ore-processing plant is rail served and has buildings with conveyors and stacks for processing of the ores or ore concentrates. There are numerous smaller buildings, possibly for storage, and a large waste pile visible on the [ ] photography; the entire area is obscured by clouds

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25X1D On the [ ] photographs, so the present status of the processing plant cannot be determined.

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**REFERENCES**

**AERIAL PHOTOGRAPHY**

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**GROUND PHOTOGRAPHY**

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**MAPS OR CHARTS**

25X1A ACIC. US Air Target Complex Chart - Series 100,  
1st ed, Aug 56, 1:100,000 (S)

**DOCUMENTS**

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3. Army. 7707 ECIC 100/X (2501) (Info - Jan 43, Source - Feb 44) (C)
4. Army. Ft. Holabird SDS #2333, (Source - 42) (S)
5. USSR. Redkiye Metally, Issue 5, 1935 (U)

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7. Army. Moscow, R-363-58, 4 Dec 58 (S)

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